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APPLICATION NO: 10/791,996
BRIEF
ATTORNEY DOCKET NO.: FA 1013 US DIV

PATENT-APPEAL
GROUP ART UNIT 1762

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF:
CARMEN FLOSBACH, ET AL.

APPLICATION NO.:
10/791,996

GROUP ART UNIT:
1762

FILED:
MARCH 3, 2004

EXAMINER:
ELENA TSOY

FOR:
COATING AGENTS AND A PROCESS FOR THE
PREPARATION OF MULTI-LAYER COATINGS

ATTORNEY DOCKET NO.:
FA 1013 US DIV

**AMENDED APPEAL BRIEF UNDER 37 C.F.R. § 41.37(d) IN RESPONSE TO
NOTICE OF NON-COMPLIANT APPEAL BRIEF UNDER 37 C.F.R. § 41.37 & §
1.191**

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Sir:

In response to the Notice of Non-Compliant Appeal Brief dated September 26, 2006 under 37 C.F.R. § 41.37 and pursuant to 37 C.F.R. §§ 41.37(d), 41.37(c), 41.37(c)(1)(v) and generally to § 41.37, Appellants hereby file an Amended Appeal Brief in support of the Notice of Appeal filed July 11, 2006, appealing the Final Office Action dated February 13, 2006 and the Advisory Action dated June 09, 2006.

Particularly, the summary of claimed subject matter more explicitly maps each independent claim, i.e., Claims 11 and 12, to the specification by page and line numbers.

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I. REAL PARTY IN INTEREST

The real party in interest is E. I. DuPont de Nemours & Co., a Delaware corporation (*hereinafter* "DuPont").

II. RELATED APPEALS AND INTERFERENCES

None.

III. STATUS OF THE CLAIMS

Claims 1-10, 13-15, and 17 were canceled. Claims 11, 12, 16, and 18-21 remain in the case. Claims 11, 12, 16, and 18-21 have been rejected under 35 U.S.C. § 102(b) and 35 U.S.C. § 103(a). No claims are allowed.

IV. STATUS OF AMENDMENT

No amendment was made to the claims in response to the Final Office Action.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Generally, this invention involves the process for applying multilayer coating to automotive body or parts. The coating comprises a base coat and a clear coat. The clear coat is a *physical mixture* of non-aromatic polyester polyols, hydroxy-functional binders and/or hydroxy-functional thinners, and at least one cross-linking agent. The non-aromatic polyester polyols are described in the specification starting from page 2, line 16 up to page 4, line 25, the hydroxy-functional binders and/or hydroxy-functional thinners are described from page 4, line 26 up to page 5, line 6, and the cross-linking agents are described starting from page 5, line 7 up to page 6, line 6.

Claim 11 and 12 are independent claims. Claim 11 relates to a process comprising applying a multi-layer coating (*See page 1, Lines 8-9*) on a substrate wherein the substrate is an automotive body or part (*See page 1, Line 22*) having a color-imparting and/or special effect-imparting (*See Page 6, Line 29*) base coat and

a coating agent applied thereon as a transparent clear coat and curing said coating; wherein the coating agent contains resin solids consisting of

- (a) 10 wt-% to 80 wt-% of a non-aromatic polyester polyol (*See Page 1, Line 32-33; Page 2, Line 19*),
- (b) 0 wt-% to 70 wt-% of at least one constituent selected from the group consisting of hydroxyl-functional binders that are different from polyester polyol (a), hydroxyl-functional reactive thinners and combinations thereof (*See page 1, Lines 34-36; Page 4, Lines 26-31*), and
- (c) 20 wt-% to 60 wt-% of at least one cross-linking agent for the hydroxyl-functional components (a) and (b) (*See Page 1, Lines 37-38; Page 5, Lines 14-18*),

wherein the polyester polyol (a) is a branched structure having a calculated molecular mass from 600 to 1400, an acid value from 0 to 30 mg KOH/g and a hydroxyl value from 250 to 600 mg KOH/g with a calculated hydroxyl functionality from 4.5 to 10 (*See Page 2, Lines 1-3*), and is composed of randomly positioned components consisting of

- (a1) hydroxyl components comprising 0 wt-% to 20 wt-% of at least one diol and 80 wt-% to 100 wt-% of at least one polyol having 3 to 6 hydroxyl groups (*See Page 2, Lines 5-7, Lines 34-37; Page 3, Lines 1-13*),
- (a2) carboxyl components comprising 0 wt-% to 20 wt-% of at least one monocarboxylic acid and 80 wt-% to 100 wt-% of at least one dicarboxylic acid (*See Page 2, Lines 8-10; Page 3, Lines 14-37*), and optionally
- (a3) at least one hydroxycarboxylic acid component (*See Page 2, Line 11; Page 4, Lines 1-7*),

the sum of the percentages by weight of components (a) to (c), of components (a1) and of components (a2) being 100% in each case (*See Page 2, Line 13*).

Claim 12 relates to a process for forming a coating layer as a single coating layer of a multi-layer coating (*See Page 1, Line 6-7*), comprising, applying to a substrate, a coating layer as described in Claim 11 above.

Claims 16, and 18-21 are dependent directly on Claim 12. All claims have been analyzed together in the argument below.

VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL

The first ground of rejection to be reviewed on appeal is the rejection of Claims 11, 12, 16, and 18-21 as anticipated under 35 U.S.C. § 102(b), by U.S. Patent 6,603,448 to Duecoffre, *et al.* (*hereinafter* "Duecoffre").

The second ground of rejection to be reviewed on appeal is the rejection of Claims 11, 12, 16, and 18-21 under 35 U.S.C. § 103(a), as obvious over Duecoffre.

The third ground of rejection to be reviewed on appeal is the rejection of Claims 11, 12, 16, and 18-21 under 35 U.S.C. § 103(a), as obvious over U.S. Patent 4,880,890 to Miyabayashi, *et al.* (*hereinafter* "Miyabayashi") in view of U.S. Patent 5,397,638 to Miki, *et al.* (*hereinafter* "Miki").

VII. ARGUMENT

Provided below is the Appellants' traversal of the Final Rejection and Advisory Action, and Arguments in support thereof.

(A) REJECTION UNDER 35 U.S.C. § 102(B)-CLAIMS 11, 12, 16, AND 18-21 -U. S. PATENT 6,063,448 TO DUECOFFRE, ET AL.

Claims 11, 12, 16, and 18-21 have been rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 6,063,448 to Duecoffre, *et al.*

Duecoffre teaches a process for coating, using a two-layer system of a base coat and a clear coat. The clear coat is applied from a non-aqueous coating medium containing a hydroxyl-functional binder. Said hydroxyl-functional binder is based on a hybrid polymer system of (meth)acrylic copolymer and a hydroxy-functional polyester that is created as a result of the (meth)acrylic copolymer being prepared in the presence of the hydroxy-functional polyester. In fact, that the methacrylic copolymer is prepared in the presence of the hydroxy-functional polyester is the main point of the Duecoffre invention (see for example, Duecoffre: Abstract; Col. 1, lines 61-66; Col. 2, lines 23-31; Col. 2, lines 39-47; Col. 3, lines 25-28; Col. 11 and 12, Examples 1 and 3; Claim 1 and Claim 2).

The hybrid polymers used in Duecoffre are different from a simple physical mixture of a (meth)acrylic copolymer and polyester polyol of the present invention in at least two ways.

(I) PHYSICAL DIFFERENCE

The Examiner suggests that the polyester described in Duecoffre is similar to the polyester polyol (a) of the present invention. However, Duecoffre's clear coat does not contain a polyester polyol. Instead, it contains a hybrid binder comprising polyester polyol as one part, and the (meth)acrylic copolymer as the second part. Particularly, in Duecoffre, the hybrid binder system has been created by free-radically polymerizing the (meth)acrylic copolymer portion in presence of hydroxy-functional polyesters. On the contrary, in the present invention the polyester polyol is a simple physical mixture. The degree of entanglement of the two different polymer chains is greater in the hybrid polymer system (Duecoffre) than in a simple physical mixture (of the present invention). Therefore the physical form of the two polymers in the Duecoffre hybrid binder system is different from the physical form of the simple mixture of the present invention.

(II) CHEMICAL DIFFERENCE

Both of the polymer portions of the hybrid polymer system or the binder may be covalently bonded in Duecoffre. The free-radical polymerization of the methacrylic monomeric mixture builds up the vinyl polymer portion of the hybrid binder. This may be accomplished through copolymerization or graft polymerization of the olefinically-unsaturated monomers with or onto olefinic double bonds of the polyester resin. The polymerization may also occur in the presence of a polyester resin, free of olefinic double bonds. Alternatively, there may be a graft polymerization of the olefinically unsaturated monomers onto the polyester portion of the polyester/vinyl polymer hybrid binder initiated by proton loss from the polyester resin. Therefore, the Duecoffre hybrid binder system is chemically different from the simple physical mixture of the present invention. Duecoffre does not teach polyester polyol (a) of the present invention, but instead teaches hybrid polymers.

The Examiner alleges that Claims 11 and 12 of the present application do not recite a negative limitation about a hybrid binder, i.e., a limitation precluding the hybrid binder. However, as described above, the "hybrid binder" is an entirely

different component, both from a physical standpoint and chemical standpoint. In its non-processed form, i.e., before the process for making the hybrid binder was initiated, the two compounds, methacrylic monomers and the hydroxy-functional binder, individually may form a precursor to binder system similar to the binder system of the present invention. However, in its final form, the hybrid binder system is completely different.

By way of analogy, we provide the example of (i) a physical mixture of hydrogen gas and oxygen gas (ii) water, which is formed from the same precursors, hydrogen and oxygen. A physical mixture of hydrogen and oxygen is physically different from water. A physical mixture of hydrogen and oxygen is also chemically different from water. Although, both the physical mixture of hydrogen and oxygen and water have been formed from the same precursors, namely hydrogen and oxygen, they are distinct from each other. In a similar fashion, a physical mixture of binders of the present application is different from the hybrid binder system of Duecoffre, although one could make the argument that the precursor ingredients for both are the same (we do not agree with this contention that "the precursor ingredients are the same," but at the same time, because this determination is not specifically implicated here, we do not address the contention either).

(III) OTHER DIFFERENCES

"[W]hen, as by a recitation of ranges or otherwise, a claim covers several compositions, the claim is 'anticipated' if *one* of [the compositions] is in the prior art."¹ "[A]lthough [a patent application's] specific claims are subsumed in [a prior art reference's] generalized disclosure. . . , this is not literal identity"² [if] "[t]he reference's ranges [are] "so broad as to be meaningless" and [provide] no guidance on how to construct a product with the patented invention's beneficial properties."

We apply the facts of the present application to the above legal framework. Components (a1) and (a2) of the present invention require that the hydroxyl components and carboxyl components comprise no more than 20 wt-% of at least one diol and at least one monocarboxylic acid, respectively. This compositional range is not disclosed either specifically, or by way of specific composition points

¹ Titanium Metals Corp. v. Banner, 778 F.2d 775 (Fed. Cir. 1985).

² Minnesota Mining & Manufacturing Co. v. Johnson & Johnson Orthopedics, Inc., 976 F.2d 1559 (Fed. Cir. 1992).

within the range, by Duecoffre. Therefore, under the ruling of *Titanium Metals*, this range is not anticipated by Duecoffre. In fact, Example 1 of Duecoffre comprises 57.8 wt-% of monocarboxylic acid (isononanoic acid) among the carboxyl components and Example 2 of Duecoffre comprises 57 wt-% diol (hexane diol) among the hydroxyl components. In these Examples, both values (the 57.8 wt-% and 57 wt-%) are far above the upper limit of 20 wt-% disclosed in the present invention. Appellants submit that this upper limit is set at 20 wt-% to ensure the high level of hydroxyl-functionality of the final polyester in the present invention.

Secondly, although Duecoffre teaches that 0 to 40 wt% of dihydric alcohols, and 0 to 60 wt% of monocarboxylic acid are used for preparing polyester polyols (See Col. 14, lines 40-65),³ and therefore, the range of "0 wt-% to 20 wt-%" is subsumed in Duecoffre's generalized disclosure. . . , this is not literal identity."⁴ Therefore, these ranges are not anticipated, because "Duecoffre's ranges [of "0-40 wt-%" and "0-60 wt-%"] [are] "so broad as to be meaningless" and [provide] no guidance on how to construct a product with the patented invention's beneficial properties."⁵ Particularly, the only data disclosed, i.e., 57.8 wt-% of monocarboxylic acid (isononanoic acid) and 57 wt-% diol (hexanediol) (in Example 1 and 2, respectively, of Duecoffre) are so far above the upper limit disclosed in the present invention (20 wt-%) that the Duecoffre ranges should be construed to be "so broad as to be meaningless," particularly because Duecoffre does not give a specific example that is within the claimed range of 0 to 20% of either components (a1) or (a2).

If the reference's disclosed range is so broad as to encompass a very large number of possible distinct compositions, this might present a situation analogous to the obviousness of a species when the prior art broadly discloses a genus.⁶ According to the Court's ruling in *Atofina v. Great Lakes*, "it is well established that the disclosure of a genus in the prior art is not necessarily a disclosure of every species that is a member of that genus."⁷ "On the other hand, a very small genus

³ Molecular weight range given in the original text, omitted in present discussion as not relevant.

⁴ *Minnesota Mining & Manufacturing Co. v. Johnson & Johnson Orthopedics, Inc.*, 976 F.2d 1559 (Fed. Cir. 1992).

⁵ *Id.*

⁶ *Id.* See also *In re Baird*, 16 F.3d 380, 29 USPQ2d 1550 (Fed. Cir. 1994); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992); MPEP § 2144.08.

⁷ *Atofina v. Great Lakes Chemical Corp.* Judgment on March 23, 2006, page 13 of original decision (Fed. Cir. 2006), citing *In re Baird*, 16 F.3d 380, 382 (Fed. Cir. 1994)

can be a disclosure of each species within a genus.”⁸ “This [was] not the case [in *Atofina*], however.”⁹

In *Atofina*, the reference disclosed a temperature range of 100°C to 500°C, and also disclosed a narrower range of 150°C to 350°C.¹⁰ The *Atofina* patent disclosed a temperature range of 330°C to 450°C.¹¹ In other words, not only the claimed range was subsumed within the range disclosed by the reference, but the claimed range also overlapped with a narrower range of the reference. Even then, the *Atofina* Court found that the reference did not disclose *Atofina*’s claimed temperature range.¹² Summarizing its *Titanium Metals* opinion, the Court stated that “*Titanium Metals* stands for the proposition that an earlier species reference anticipates a later genus claim, not that an earlier genus anticipates a narrower species.”¹³ The Court further stated that “[g]iven the considerable difference between the claimed range and the range in the prior art, no reasonable fact finder could conclude that the prior art describes the claimed range with sufficient specificity to anticipate this limitation of the claim.”¹⁴

Applying the facts of the present application to the above legal framework proposed by the *Atofina* Court, clearly, “there is a considerable difference between the claimed range [0-20 wt-%] and the range in the [Duecoffre reference] [0-40 wt-% and 0-60 wt-%], [and] no reasonable fact finder could conclude that the [Duecoffre reference] describes the claimed range with sufficient specificity to anticipate this limitation of the claim.”

“In chemical compounds, a single prior art species within the patent’s claimed genus reads on the generic claim and anticipates.”¹⁵ Therefore, if the disclosed range is broad, a single prior art range specifically disclosed within the patent’s claimed broader range reads on the claim and anticipates. However, clearly, the reverse of that statement, is not true. In fact, according to MPEP § 2144.05 (I) “Overlap of Ranges,” “a prior art reference that discloses a range encompassing a somewhat narrower claimed range is sufficient to establish a *prima facie* case of

⁸ *Id.* citing *In re Petering*, 301 F.2d 676, 682 (C.C.P.A. 1962).

⁹ *Id.*

¹⁰ *Id.* at page 4.

¹¹ *Id.* at page 13.

¹² *Id.* at page 14.

¹³ *Id.* at page 14, citing *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 782 (Fed. Cir. 1985).

¹⁴ *Id.* at page 14.

¹⁵ *In re Gostelli*, 872 F.2d 1008 (Fed. Cir. 1989).

obviousness."¹⁶ However, there is no indication that it anticipates or necessarily anticipates.

In fact, a disclosure of a broad genus does not necessarily specifically disclose a species within that genus.¹⁷¹⁸ In *Coming Glass*, Sumitomo argued that "a claim to a genus would inherently disclose all species."¹⁹ The Court found the Sumitomo argument "wholly meritless whether considered under section 102(b) or under 35 U.S.C. § 103. . . ."²⁰

Appellants submit that Appellants' recital of these rules should not be construed as admission that the present claims are *prima facie* obvious.²¹ Appellants are merely responding to the Examiner's observation that the range claimed in the present invention, i.e., from 0 wt-% to 20 wt-%, does not *overlap* with the range in the reference (0 wt-% to 40 wt-% and 0 wt-% to 60 wt-%), but is actually *covered* (encompassed) by the range in the reference, and to her conclusion from that observation, that as a result, somehow, the invention is anticipated.²²

The Examiner also states that the claimed range (0-20 wt-%) is actually *encompassed* ("covered") and does not overlap the ranges disclosed by the reference. In the alternative to the above discussion and argument, Appellants disagree to this construction by the Examiner (*However, as pointed out previously, Appellants disagree with the logic, or the lack thereof, and the conclusion drawn by the Examiner when she made this point*). Particularly, Appellants wish to point out that the lowest number on percent range that one can disclose or claim is 0%. Clearly, even if the Appellants wanted to make the argument for "sufficient specificity" and "overlapping ranges," which according to the Examiner is available only for those situations where there is an "overlapping range," at the lower end of the ranges, i.e., at 0%, such argument cannot be made if the term "overlap" is strictly construed. One can argue that an "overlap" can be found if Appellants had claimed a range that falls below and above 40% or 60%. However, as Appellants note

¹⁶ *In re Peterson*, 315 F.3d 1325, 1330, 65 USPQ2d 1379, 1382-83 (Fed. Cir. 2003).

¹⁷ *Coming Glass Works v. Sumitomo Elec. U.S.A., Inc.*, 868 F.2d 1251, 1262 (Fed. Cir. 1989).

¹⁸ As far as the obviousness is concerned, it should be noted that simply because a claimed compound may be encompassed by a disclosed generic formula does not by itself render that compound obvious. See for e.g., *In re Baird*, 16 F.3d 380 (Fed. Cir. 1994). For example, "[a] disclosure of millions of compounds does not render obvious a claim to three compounds, particularly when that disclosure indicates a preference leading away from the claimed compounds." See for e.g., *In re Jones*, 958 F.2d 347 (Fed. Cir. 1992).

¹⁹ *Coming Glass Works v. Sumitomo Elec. U.S.A., Inc.*, 868 F.2d 1251, 1262 (Fed. Cir. 1989).

²⁰ *Id.*

²¹ In fact, the discussion relates only to two specific components (a1) and (a2), within the claimed set of components, and not the entire claim.

²² See Examiner's arguments in Advisory Action dated June 09, 2006.

below, they have found a useful range of the two components (a1) and (a2), only at the lower end; the higher end of the range is not implicated by the Appellants invention. And therefore, Appellants have claimed the lower range and request the Board to accommodate Appellants' arguments on "Anticipation of Ranges" described in MPEP § 2131.03, particularly, in light of the *Atofina* Court's approach in using the "sufficient specificity" argument in a situation where the claimed range is completely subsumed by the reference range.²³ The arguments are provided below.

According to MPEP § 2131.03 (II)-Anticipation of Ranges, "[w]hen the prior art discloses a range which. . . overlaps. . . the claimed range, but no specific examples falling within the claimed range are disclosed, a case by case determination must be made as to anticipation. In order to anticipate the claims, the claimed subject matter must be disclosed in the reference with "sufficient specificity to constitute anticipation under the statute.""

Appellants submit that although Examples 1 and 2 of Duecoffre discuss a 57.8 wt-% of monocarboxylic acid and a 57 wt-% of hexanediol, respectively, clearly, these quantities do not constitute a "sufficient specificity" to constitute anticipation of the claimed range of 0-20% both for the monocarboxylic acid component (element (a(2))) and the diol (element (a1)) of the present invention.

In *Atofina*, besides being subsumed in a broader range (100°C-500°C) of the reference, the claimed range (330°C-450°C) also overlapped with a preferred narrow range (150°C to 350°C) of the reference. Even then, the Court found that the claimed range was not anticipated. The Court cited the following reasons: (1) the slightly overlapping range is not disclosed as a species of the claimed range, and (2) the disclosure of a preferred range of 150°C to 350°C *does not constitute a specific disclosure* of the endpoints of that range 150°C and 350°C. Specifically, "the disclosure is *only that of a range*, [and] not a specific temperature in that range, and the disclosure of a range is no more a disclosure of the end points of the range than it is of each intermediate points." Thus the reference did not disclose a "specific embodiment" of the claimed temperature range.²⁴

In the present invention, the claimed range 0-20 wt-% is subsumed in the reference ranges of 0-40-wt% and 0-60-wt%. However, there is no overlap between

²³ *Atofina v. Great Lakes Chemical Corp.* Judgment on March 23, 2006, page 14 of original decision (Fed. Cir. 2006).

²⁴ *Id.* at 14, and 15.

the ranges. Applying these facts to the above framework proposed by the *Atofina* Court, even if there was (and of course, there is not, this is purely a hypothetical conjecture) an overlap between the claimed range and another reference range subsumed within the broad "genus," because the claimed range would not be construed as anticipated because the "slightly overlapping range is not disclosed as a species of the claimed range," and "the disclosure of a preferred range with [endpoints] does not constitute a specific disclosure of the endpoints of that range." The disclosure would be that of the range and not the specific wt-% composition within the range. However, here, even that type of overlap does not exist. Clearly, the reference can never be construed to disclose a "specific embodiment" of the claimed composition range.

Further, it appears that the Examiner has misconstrued Duecoffre's teachings by erroneously linking one portion of the reference to another portion of the reference. Under a judicial interpretation by the Court of Appeals for the Federal Circuit (*See Echolochem, Inc. v. Southern California Edison Co.*, 227 F.3d 1361, Fed. Cir. 2000), this is impermissible.

Specifically, Duecoffre's polyesters are ordinarily known polyesters. The polyesters claimed in the present invention with the specific combination of limitations cannot be found in Duecoffre. A hypothetical person skilled in pertinent art, desirous of developing polyester-based clear coat with the advantageous properties described in the present application, would not look into Duecoffre as closest prior art. Nevertheless, if the skilled person were to do so, she would not find any suggestion or combination in Duecoffre's disclosure describing the limitations claimed in the present invention. If such person were to look at polyesters described in Duecoffre's examples in order to find the best mode polyesters, such polyesters, however, would teach in a different quantitative range from our specifically limited polyesters.

Because "[a]nticipation requires a showing that each limitation of a claim is found in a single reference, either expressly or inherently,"²⁵ and because Duecoffre does not disclose each limitation of claims of the present invention, Duecoffre does not anticipate the claims of the present invention under 35 U.S.C. § 102(b).

²⁵ *Atofina v. Great Lakes Chemical Corp.* Judgment on March 23, 2006, page 13 of original decision (Fed. Cir. 2006), citing *Perricone v. Medicis Pharm. Corp.*, 432 F.3d 1367, 1368 (Fed. Cir. 2005).

- (B) REJECTION UNDER 35 U.S.C. § 103(A)
(I) CLAIMS 11, 12, 16, AND 18-21 -U. S. PATENT 6,063,448 TO DUECOFFRE, ET AL.

According to paragraph 6 of the Non-Final Office Action dated August 03, 2004, which the Examiner has cited as basis for rejection in the current Final Office Action, Claim 11 was rejected (also) as obvious under 35 U.S.C. § 103(a) over Duecoffre.

Section 2142 of the MPEP indicates that a *prima facie* case of obviousness is established only when:

- (1) all of the claim limitations are either taught, or suggested by the cited prior art;
- (2) there is some suggestion or motivation to modify or combine the cited prior art references; AND
- (3) there is a reasonable expectation of successfully producing the claimed invention via such a combination.

Applicants respectfully submit that a *prima facie* case of obviousness is not established because all claim limitations are not taught by Duecoffre. The entire discussion on lack of anticipation of claims by Duecoffre is incorporated herein, and as it was amply demonstrated, all elements of the claims are not found in Duecoffre.

The second prong of the obviousness inquiry is also not satisfied. As noted above, Duecoffre describes hybrid polymers rather than the physical mixtures disclosed in the present invention. Thus, the use of polyesters described in the teachings of Duecoffre would again result in hybrid polymers rather than a simple mixture of a (meth)acrylic copolymer and polyester polyol.

Finally, as there is no suggestion of such a combination, clearly, a question whether there is any reasonable expectation of successfully producing the claimed invention via such a combination does not arise.

Because prong 1 of the above test is not satisfied, the claims are not *prima facie* obvious over Duecoffre. The claims are also not *prima facie* obvious because prong 2 of the above test is not satisfied. The claims are also not *prima facie* obvious because prong 3 of the above test is not satisfied.

- (II) U. S. PATENT 4,880,890 TO MIYABAYASHI, ET AL. AND U. S. PATENT 5,397,638 TO MIKI, ET AL.

Claims 11, 12, 16, 18-21 were rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Patent 4,880,890 to Miyabayashi, *et al.* (*hereinafter* "Miyabayashi") in view of U. S. Patent 5,397,638 to Miki, *et al.* (*hereinafter*, "Miki").

(a) Examiner's Hypothesis

Miyabayashi teaches that "a thermosetting resin composition may be used for preparing precoated metals by applying the resin composition to a metal substrate such as alloyed zinc-plated steel after conventional chromating pre-treatment. The film also exhibits increased hardness as high flexibility, stain resistance and chemical resistance and can be utilized for, among others, electrical appliances." Clearly, Miyabayashi fails to teach that the method is suitable for treating automotive body.

However, Miki teaches "increasing requirements for more corrosion resistance than before in automotive bodies and household electric appliances are met by coating zinc alloy-plated steel sheets with a chromate layer and resin film." Therefore, according to the Examiner, Miki is a "secondary reference, which is relied upon to show that a method suitable for treating household electric appliances is also suitable for treating automotive bodies."²⁶

Thus, one of ordinary skill in the art would have been motivated and would have a reasonable expectation of success to apply a method of Miyabayashi suitable for household electric appliances for automotive bodies because "Miki teaches that a method suitable for household electric appliances comprising steps of coating zinc alloy-plated steel sheets with a chromate layer and resin film is also suitable for automotive bodies."²⁷

(b) Applicants' Remarks

Applicants respectfully disagree with the Examiner's reasoning of obviousness under 35 U.S.C. § 103(a) with reference to Miyabayashi in view of Miki.

The test for *prima facie* case of obviousness was cited in the previous section.

The first prong of the obviousness inquiry is not satisfied here. The polyester polyol (a) of the present system is non-aromatic. On the other hand, Miyabayashi allows for aromatic material, e.g. Col. 4, line 52-65 comprises a number of aromatic dicarboxylic acids, the paragraph connecting col. 4 and col. 5 comprises aromatic diols.

²⁶ Emphasis in the original.

²⁷ See Examiner's remarks in Advisory Action dated June 09, 2006 and the Final Office Action dated February 13, 2006.

Furthermore, the Miyabayashi reference is directed to polyester binders that are useful binders in coating compositions suitable for *metal precoat*ing. There is no suggestion to its usefulness as binders in clear coats for automotive coating such as are used on base coat-coated automotive substrates like base coat-coated automotive bodies. In addition, Appellants' invention does not deal with bare automotive bodies (in Claim 11) but with automotive bodies that are provided with a color-imparting and/or special effect-imparting base coat layer and that are to receive the final outer clear coat layer. A person skilled in automotive body coating and having the objective to apply such outer automotive clear coat would not look at references which deal with the precoat of bare metal substrates and coating compositions suitable for that purpose, independent of whether the bare metal substrates are household electric appliances or automotive bodies or whatever else.

Secondly, Appellants respectfully submit that a *prima facie* case of obviousness is also not established because the second prong of the obviousness inquiry is not satisfied. The second prong of the obviousness inquiry states that there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine reference teachings is not satisfied (See *In re Lee*, 277 F.3d 1338 (Fed. Cir. 2002)).

Specifically, neither Miyabayashi, nor Miki express any suggestion or motivation to combine the two references to arrive at the claims of the present invention in question. Miki relates to providing a resin-coated steel sheet having good electrocoat ability and weldability. The Examiner's contention that Miki teaches that a method suitable for household electric appliances comprising steps of coating zinc alloy-plated steel sheets with a chromate layer and resin film is also suitable for automotive bodies" is incorrect. Miki states that "a resin-coated steel sheet having good electrocoat ability and weldability is suitable for automotive bodies and household electric appliances." In other words, a steel sheet with such properties is suitable for automotive bodies and household electrical appliances. Miyabayashi does not discuss electrocoat ability and weldability.

Also, Miki discusses the properties of the steel sheet and not the application of the resin. Yes, it does state that such sheets would be suitable for electrical appliances and automotive bodies. However, nowhere does Miki state that the coating that is implicated in the present application and/or the coating that is

implicated in Miyabayashi is suitable for automotive bodies. A person skilled in the art knows that not all resins can be used for coatings, and that not all resins can be used for automotive coatings.

Furthermore, this invention is about coatings. Miki discusses steel sheets. Miki's steel sheets are coated with resins. That clearly does not mean an indication that ANY AND ALL resins, for example, that of Miyabayashi, can be used for automotive bodies. The steel sheets of Miki may be used for both applications provided the conditions discussed in Miki are met. But that does not mean that any and all resins, for example, that of Miyabayashi, on the steel sheets for electrical appliances can also be used for automotive bodies. From the Examiner's own admission, and even otherwise, Miyabayashi relates to coatings related to household electrical appliances and not automotive bodies.

Applicants also respectfully submit a *prima facie* case of obviousness is further not established because the third prong of the obviousness inquiry is not satisfied. Applicants do not believe that the combination of Miyabayashi with Miki teaches or suggests the present invention. There is no likelihood or an expectation of success from such a combination. Even if such a combination is made, this would not result in an automotive body base coat/clear coat top-coating process, as claimed by the present invention because neither of the references mentions or suggests base coat/clear coat top-coating process. The Examiner points at Miki, Col. 1, lines 10-29. However, this citation relates to electrocoatable resin-coated steel sheets, which are typical primer coatings for bare metal, and not base coat/clear coat systems. Therefore, there is no reasonable expectation of success from such a combination.

Therefore, Applicants respectfully submit that the Examiner has not met her burden of proof in establishing a *prima facie* case of obviousness, and therefore, Miyabayashi, in view of Miki, does not render the claims of the present invention obvious.

VIII. CONCLUSION

For the reasons set forth above, the Board of Patent Appeals and Interferences is respectfully requested to reverse the final rejection of pending Claims 11, 12, 16, and 18-21 and indicate allowability of all claims.

Please charge any fee due which is not accounted for to Deposit Account No. 04-1928 (E.I. du Pont de Nemours and Company).

Respectfully Submitted,

BY:

Date: October 26, 2006



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CLAIMS APPENDIX

11. A process comprising applying a multi-layer coating on a substrate wherein the substrate is an automotive body or part having a color-imparting and/or special effect-imparting base coat and a coating agent applied thereon as a transparent clear coat and curing said coating; wherein the coating agent contains resin solids consisting of

- (a) 10 wt-% to 80 wt-% of a non-aromatic polyester polyol,
- (b) 0 wt-% to 70 wt-% of at least one constituent selected from the group consisting of hydroxyl-functional binders that are different from polyester polyol (a), hydroxyl-functional reactive thinners and combinations thereof, and
- (c) 20 wt-% to 60 wt-% of at least one cross-linking agent for the hydroxyl-functional components (a) and (b),

wherein the polyester polyol (a) is a branched structure having a calculated molecular mass from 600 to 1400, an acid value from 0 to 30 mg KOH/g and a hydroxyl value from 250 to 600 mg KOH/g with a calculated hydroxyl functionality from 4.5 to 10, and is composed of randomly positioned components consisting of

- (a1) hydroxyl components comprising 0 wt-% to 20 wt-% of at least one diol and 80 wt-% to 100 wt-% of at least one polyol having 3 to 6 hydroxyl groups,
- (a2) carboxyl components comprising 0 wt-% to 20 wt-% of at least one monocarboxylic acid and 80 wt-% to 100 wt-% of at least one dicarboxylic acid, and optionally
- (a3) at least one hydroxycarboxylic acid component,

the sum of the percentages by weight of components (a) to (c), of components (a1) and of components (a2) being 100% in each case.

12. A process for forming a coating layer as one coating layer of a multi-layer coating comprising:

applying to a substrate a coating layer comprising a coating agent and curing said coating layer, wherein the substrate is an automotive body or part having a color-imparting and/or special effect-imparting base coat and the coating agent applied thereon as a transparent clear coat; wherein the coating agent contains resin solids consisting of

- (a) 10 wt-% to 80 wt-% of a non-aromatic polyester polyol,
- (b) 0 wt-% to 70 wt-% of at least one constituent selected from the group consisting of hydroxyl-functional binders that are different from polyester polyol (a), hydroxyl-functional reactive thinners and combinations thereof, and
- (c) 20 wt-% to 60 wt-% of at least one cross-linking agent for the hydroxyl-functional components (a) and (b),

wherein the polyester polyol (a) is a branched structure having a calculated molecular mass from 600 to 1400, an acid value from 0 to 30 mg KOH/g and a hydroxyl value from 250 to 600 mg KOH/g with a calculated hydroxyl functionality from 4.5 to 10, and is composed of randomly positioned components consisting of

- (a1) hydroxyl components comprising 0 wt-% to 20 wt-% of at least one diol and 80 wt-% to 100 wt-% of at least one polyol having 3 to 6 hydroxyl groups,
- (a2) carboxyl components comprising 0 wt-% to 20 wt-% of at least one monocarboxylic acid and 80 wt-% to 100 wt-% of at least one dicarboxylic acid, and optionally
- (a3) at least one hydroxycarboxylic acid component,

the sum of the percentages by weight of components (a) to (c), of components (a1) and of components (a2) being 100% in each case.

16. The process according to claim 12, wherein the polyester polyol (a) comprises 30 wt-% to 60 wt-% of at least one hydroxyl component (a1), 30 wt-% to 70 wt-% of at least one carboxyl component (a2) and 0 wt-% to 10 wt-% of at least one hydroxycarboxylic acid component (a3).

18. The process according to claim 12, wherein the carboxyl component (a2) consists of at least one dicarboxylic acid.
19. The process according to claim 12, wherein the polyester polyol (a) comprises dimer fatty acid as one of at least two dicarboxylic acids of the carboxyl component (a2) corresponding to a weight ratio from 5 wt-% to 45 wt-% of dimer fatty acid and 55 wt-% to 95 wt-% of at least one additional dicarboxylic acid.
20. The process according to claim 12, wherein the cross-linking agent (c) is selected from the group consisting of aminoplastic resins, free polyisocyanates, blocked polyisocyanates, transesterification cross-linking agents or combinations thereof.
21. The process according to claim 12, wherein the coating agent selected from the group consisting of aqueous coating agents and coating agents based on organic solvents.

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EVIDENCE APPENDIX

None

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RELATED PROCEEDINGS APPENDIX

None



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Title: Coating Agents and a Process for the Preparation of Multi-Layer Coatings

Attorney Docket: FA1013 US DIV

- Transmittal
- Amended Appeal Brief Under 37 CFR Section 41.37(d) In Response to Notice of Non-Compliant Appeal Brief Under 37 CFR Section 41.37 & 1.191
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